

A NEW GENUS AND SPECIES OF RHYSODESMINE  
MILLIPED FROM SOUTHERN GEORGIA  
(POLYDESMIDA: XYSTODESMIDAE)

Richard L. Hoffman

*Abstract.*—The minute xystodesmid *Caralinda beatrix* is described as a new genus and species known so far only from Tifton, Georgia. Despite a somewhat disjunct gonopod structure, other anatomical features justify referral of the genus to the tribe Rhysodesmini. A key to the eight known genera of this group is given, as well as an indication of the number of species and their distribution for each genus.

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The diplopod fauna of Georgia is notable for its representation of endemic monotypic genera of xystodesmids—*Dynoria*, *Stelgipus*, *Lyrranea*, and *Erdelyia*—discovered during the past four decades. That the end has not been reached is shown by the present revelation of a fifth Georgian constituent. Whereas the four genera just named can be fairly easily associated with other known groups in the Southern Appalachian fauna, the new form described here is strikingly disjunct. Although it can be placed in the tribe Rhysodesmini it occupies there a position removed from its nearest relatives both structurally and geographically.

On the occasion of describing *Lyrranea persica* (1963) I implied that field work in Georgia might be most profitable during the colder months, and that supposition has been amply vindicated through the diligence of my colleague Jerry A. Payne (Southeastern Fruit and Tree Nut Research Station, USDA, Byron, Georgia). Among other interesting finds, Dr. Payne has collected and transmitted to me not only new xystodesmid here described, but also material of a highly specialized and disjunct new parajulid genus. His generosity in making all of these specimens available to me is acknowledged with pleasure.

Family Xystodesmidae Cook  
Tribe Rhysodesmini Brolemann  
*Caralinda*, new genus

*Type-species.*—*C. beatrix*, new species, from Georgia.

*Diagnosis.*—A genus of minute xystodesmids characterized by the form of the gonopods, by the continuation of the scapular rim entirely across the dorsum of body segments, and by the presence of small but distinct median conical sternal processes between the 3rd and 4th pairs of legs. Labral and clypeal setae closely approximate and merging at lateral end of labrum, thence continuing along lower half of genal margin.

Sternum of 7th segment broad; that of 8th segment abruptly narrower; those of following segments gradually increasing in width back to mid-body, bicrucially impressed and set with long silky macrosetae.

Gonopod aperture small but unusually extended transversely; gonopods with prominent sclerotized median sternal element; coxae somewhat flattened but otherwise unmodified; prefemora broad, flattened to concave on the ventral surface, with long, flattened, apically bifid prefemoral process; acropodite region set off from prefemur by a conspicuous transverse suture; in the form of an elongated, dorsomedially curved hood-like structure, the inner surface of which is produced into a free-standing bilobed solenomerite; entire course of prostatic groove visible in mesal aspect.

Sternum of second pair of legs of female strongly reduced in size, merging into intersegmental membrane just laterad to stigmal openings; cyphopods relatively large with subhemispheric receptacle and two large subequal valves.

*Distribution*.—Known so far only from the type locality of the type species, in the Coastal Plain of south central Georgia.

*Etymology*.—For Linda Knight Hoffman (1947–1976). Gender feminine.

*Caralinda beatrix*, new species

Figs. 1–10

*Diagnosis*.—With the characters of the genus; differing from all other known xystodesmids in the combination of small size, formation of the interzonal suture, setiferous bicrucially impressed sterna, presence of median conical processes on anterior sterna of males, and the highly disjunct form of the gonopods.

*Type-material*.—Male holotype, nine male and five female paratypes from Tifton, Tift County, Georgia; Jerry A. Payne leg. 13 and 27 January 1968 (Hoffman Collection).

*Holotype*.—Adult male, length ca. 16.5 mm, maximum width 3.8 mm, W/L ratio 23.0%. Body compact, paranota overlapping broadly, width of segments increasing rapidly from collum to 6th, thence parallel back to about 15th segment before tapering off abruptly as indicated by the following width values:

Segment 1—3.4 mm	Segment 10—3.8 mm
2—3.5	12—3.8
4—3.7	14—3.6
6—3.8	16—3.4
8—3.8	18—2.5

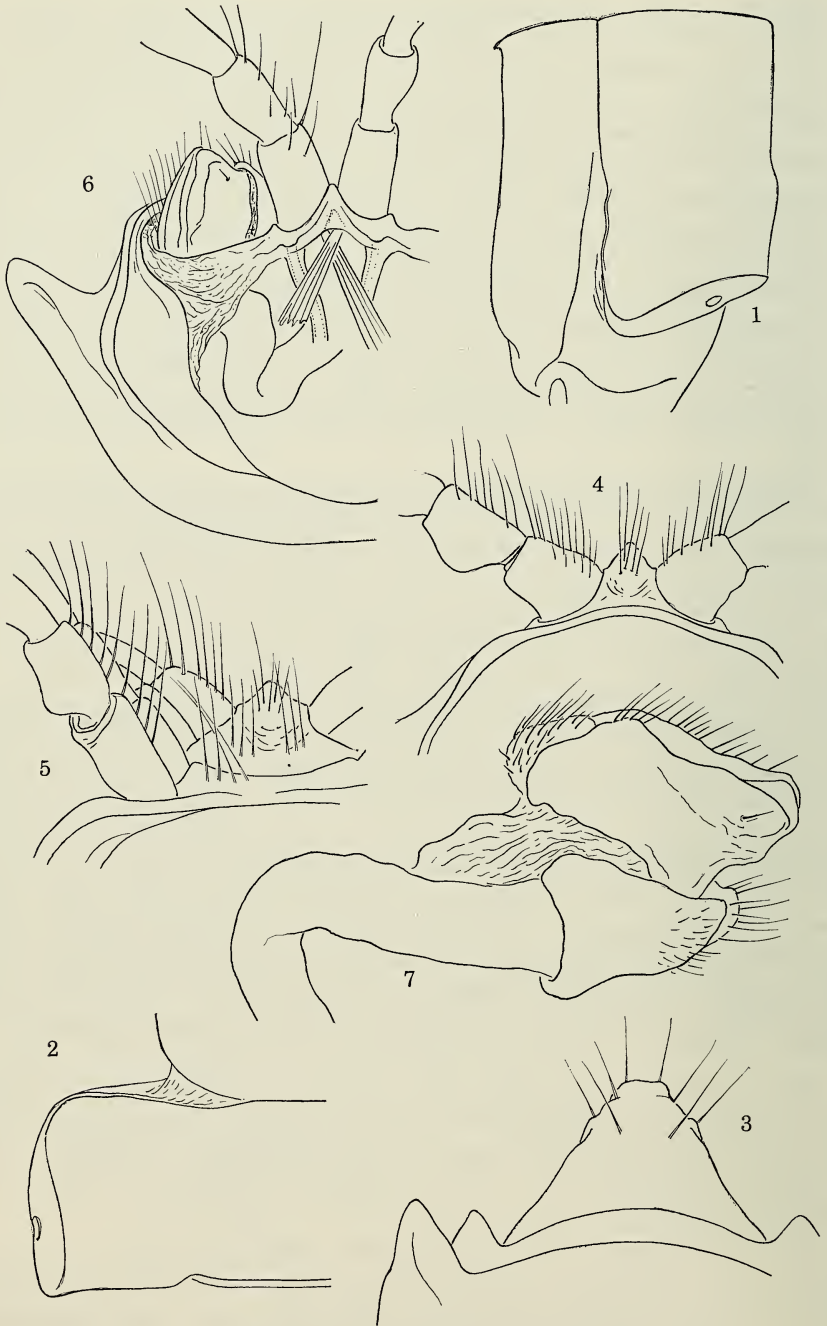
Color generally testaceous yellow, underparts lighter, shading into whitish, specimen perhaps preserved prior to maturation of color pattern.

Head of normal xystodesmid form, evenly convex, surface smooth and polished, epicranial groove indistinct, genae without evident median depression and without trace of lateral margination. Interantennal space broad (0.8 mm), equal to length of second antennomere or to length of sixth and seventh combined. Width of head across genae 2.3 mm. 2-2 widely spaced epicranial setae, members of each pair further apart than distance from inner seta to median suture; 1-1 interantennal; 1-1 subantennal; about 12-12 setae scattered in the frontoclypeal region without evident pattern; clypeal and labral series close together and difficult to count accurately but with about 14-14 in each, the two series merge laterally and continue along basal half of genal edge as a row of about eight long setae followed by several very short ones. Antennae long (3.9 mm), articles 2-6 similar in appearance, second a little longer than sixth; all sparsely setose and without evident sensory fields; seventh subhemispherical, with four small terminal cones.

Collum without special modification except for depressed area just posterior to upper craniomandibular condyle; anterolateral edge set off by distinct ridge. Body segments smooth and polished dorsally, except surface of paranota somewhat rugulose-tuberculate. Surface of prozona microscopically reticulate. Median ends of paranotal scapulae continuous with each other completely across dorsum (Figs. 1, 2) as fine but well-defined sutural ridge which is not continuous with anterior edge of stricture on sides of segments; scapulae submarginal at paranotal bases. Paranota set relatively high on sides, those of anterior segments depressed and continuing slope of dorsum, those of midbody region somewhat more horizontal; peritremata long and narrow, pores opening laterally just behind midlength; posterior paranotal corners right-angled on anterior segments, becoming increasing acute and caudally produced from midbody posteriad, those of segment 19 reduced to small triangular lobes scarcely exceeding apices of preceding paranota. Terminal segments without special features, epiproct short, dorsally convex, apex truncate; paraprocts smooth, the proximal discal seta set close to the median rim; hypoproct large, with prominent median projection, paramedian tubercles small.

Sterna bicrucially impressed with median and transverse grooves, the quadrate areas thus produced elevated and set with unusually long silky macrosetae. Sternum of 7th segment (behind gonopods) ca. 0.9 mm, that of segment 8 much narrower, 0.5 mm; sternum of segment 9, 0.6 mm, of segment 10, 0.8 mm.

Legs of moderate length, the podomeres stout, unmodified except for profuse long setation on ventral side of coxae and prefemora; distal spine of latter straight and acute; tarsal claw long (nearly one-third length of tarsus), compressed, the dorsal edge sharp.





Sides of metazona granular-coriaceous, anterior segments with small but prominent pleurosternal carinae; stigmata similar in shape, elongate vertical slits, the anterior slightly larger, both set adjacent to dorsal coxal condyles.

Anterior legs unmodified except that tarsi are somewhat shorter and tarsal claws appear relatively longer; sternum of segment 4 with a low conical median process (Fig. 4), sternum of segment 5 with a similar process between anterior pair of legs (Fig. 5), both sternal processes with some long setae on posterior side as illustrated.

Gonopod aperture transversely oval, much broader than long, the edges not modified. Gonopods very singular in form, relatively robust and massive in relation to body size. Coxae unmodified, with two dorsal macrosetae, separated by a sclerotized median sternal remnant (Fig. 8). Prefemur about half telopodite length, ventral side flattened and setose, dorsal side with large, ventrally-curved, apically bifurcate prefemoral process; acropodite region of telopodite expanded, deeply concave, set off from prefemur by prominent transverse cingulum. Prostatic groove visible for its entire length in mesal aspect, terminating on the upper half of a prominent bilobed solenomerite originating near ventral edge of acropodite, latter projecting mesad and slightly dorsad (Figs. 9, 10).

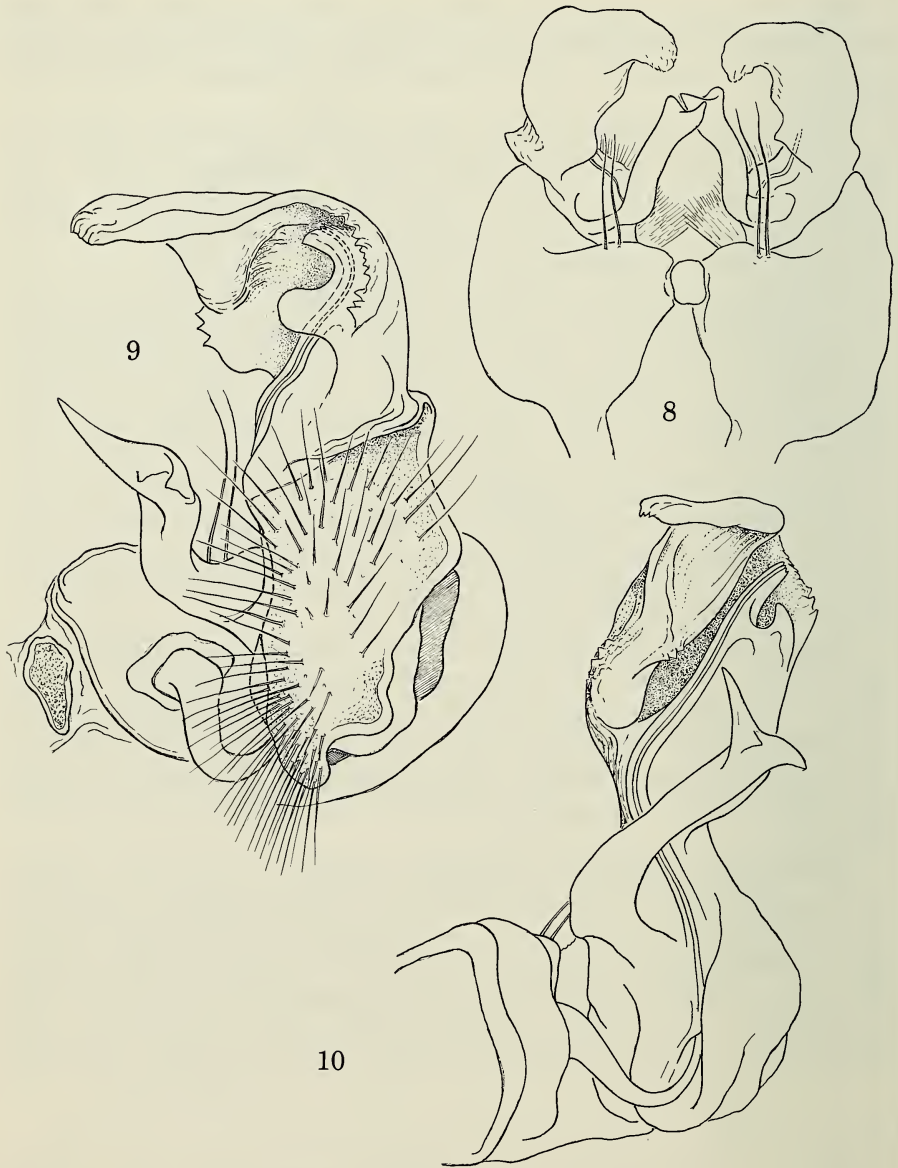
*Paratype*.—Adult female, similar in size, coloration, and structural details to male as described above, except antennae slightly more slender, sterna broader, and paranota narrower, than in male. Structure of genitalia as shown in Figs. 6 and 7, sternum of 2nd pair of legs considerably reduced in size, scarcely large enough to form basis for coxae; cyphopods large, with prominent cupulate receptacle; valves similar in size and shape (Fig. 7).

*Relationships*.—Despite a superficial similarity in gonopod structure to the pattern that occurs in the aphelorine genus *Stelgipus* (particularly in an undescribed species of the South Carolina coastal plain) I believe that *Caralinda* must be reckoned as a member of the tribe Rhysodesmini. This group is the only tribe represented in eastern United States in which a sclerotized sternal element is retained between the gonopod coxae, and in which the unusual modification of the interzonal suture line occurs

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Figs. 1-7. *Caralinda beatrix*, sp. n. 1, Midbody segment, lateral aspect showing dorsal continuation of scapular ridge. 2, left paranotum of the same segment, dorsal aspect. 3, epiproct and paranota of segments 18 and 19, dorsal aspect. 4, sternum and bases of legs of 4th segment, aboral aspect. 5, sternum and bases of legs, 5th segment, aboral aspect. 6, sternum and bases of legs of 2nd segment, oral aspect, showing left side of pleurotergum, part of cyphopod, and oviduct, intersegmental membrane largely removed except around base of cyphopod. 7, right cyphopod, aboral aspect. Figs. 1-5 drawn from holotype, 6 and 7 from female paratype.



Figs. 8-10. *Caralinda beatrix*, sp. n. 8, gonopods, oral (cephalic) aspect. 9, left gonopod, oblique posteromedian aspect, showing sternum (stippled) and solenomerite. 10, left gonopod, median aspect, prefemoral setae omitted. Drawings from male paratype.

(in *Cherokia*, Hoffman, 1960, and two species of *Rhysodesmus*, Hoffman, 1970). Some affinity with *Cherokia* is also suggested by the prominent cingulum between prefemur and femur of the gonopod. Further, only in the Rhysodesmini is the tendency for reduction in body size expressed (*Caralinda beatrix*, *Gyalostethus monticolens*, and several species of *Rhysodesmus* are all less than 20 mm in length).

The most obvious non-rhysodesmine characters obtain in the enlarged prefemoral process and shortened, hood-like form of the telopodite which constitutes a sort of shield behind the bilobed solenomerite. In other small rhysodesmines the females are generally much larger than the males, in contrast to the present genus which shows no sexual dimorphism in size.

I believe that despite our still fragmentary knowledge of southeastern millipeds, it is justifiable to regard *Caralinda* as a disjunct member of the Rhysodesmini, with greater affinity to *Cherokia* than other local genera. Although this tribe has been mentioned several times in recent literature, there exists still no complete summary of its components, and I venture to provide here a tentative key to genera and some information on synonymy and distribution at the generic level.

#### Key to the Genera of the Tribe Rhysodesmini

1. Gonopod short, robust, distal half of telopodite expanded to form a shield-like, concave structure protecting the large bilobed solenomerite; prefemoral process large, stout, apically bifurcate, curved ventromesad in front of prefemur *Caralinda*, new genus
- Gonopod long and slender, telopodite becoming more slender and laminate distally, never expanded into a shield, at most with a subterminal branch; prefemoral process small, acicular, parallel to telopodite and remaining on dorsal side 2
2. Prefemur and acropodite regions of telopodite separated by a distinct transverse cingulum *Cherokia* Chamberlin
- Prefemoral region of gonopod continuous with the more distal region 3
3. Distal half of telopodite with a large and prominent subterminal branch, nearly or quite as large as the solenomerite 4
- Distal half of telopodite entirely simple or with a small apical process much inferior to the groove-bearing lobe in size 5
4. Coxae of walking legs without distal spine; ventral branch of gonopod telopodite originating as far down as prefemoral region *Pleuroloma* Rafinesque
- Coxae of walking legs with very long, retrorse hook-like spine extending proximad nearly to base of coxa; ventral branch of telopodite originating far out from end of prefemoral region *Erdelyia* Hoffman

5. Apex of gonopod telopodite with a small process located on the outer curvature just proximad to end of prostatic groove; majority of species with more than four antennal sensory cones (Mexico, Guatemala, El Salvador) *Rhysodesmus* Cook
- Apex of gonopod simple, no subterminal process; antennae with never more than four sensory cones 6
6. Distal end of gonopod telopodite slightly expanded, its edge hyaline, incised-pectinate; sterna remarkably broad, shallowly concave *Gyalostethus* Hoffman
- Distal end of gonopod telopodite simple, laminate, edge entire; sterna of moderate width and never concave 7
7. Acropodite region of gonopod relatively short (one half to one third length of prefemur), broad and flattened (eastern United States) *Boraria* Chamberlin
- Acropodite region longer (one half to two-thirds length of prefemur), relatively slender, distally attenuated, the terminal fourth usually curved mesad (Mexico) *Stenodesmus* DeSaussure

It should be emphasized that the foregoing key does not reflect actual relationships. In particular the association of *Pleurolooma* and *Erdelyia* is a matter of convenience only; the latter genus is in fact very closely related to *Boraria* both structurally and geographically. Also, *Rhysodesmus* is very close to *Boraria* and *Stenodesmus* and the distinction between these three groups remains still rather subjective. It is quite possible that all should be merged.

The following outline will summarize the present state of our knowledge of this tribe at the generic level:

Tribe Rhysodesmini Brolemann, 1916.

*Rhysodesmus* Cook, 1895 (syn. *Dampfaria* Verhoeff, 1932; *Aporiaria* Chamberlin, 1938; *Acentronus* Chamberlin, 1943). About 60 species, Nuevo Leon and Texas, south throughout Mexico to central Guatemala and El Salvador.

*Stenodesmus* DeSaussure, 1859 (syn. *Cruzodesmus* Chamberlin, 1943; *Cibularia* Chamberlin & Hoffman, 1950). Ten species, Mexico (a revision is in manuscript form).

*Boraria* Chamberlin, 1943 (syn. *Aporiaria* Chamberlin, 1939, non sensu Chamberlin, 1938; *Howellaria* Hoffman, 1950). Four species, eastern United States (Appalachian and Ozark regions).

*Erdelyia* Hoffman, 1963. One species, eastern United States (Georgia).

*Gyalostethus* Hoffman, 1967. One species, eastern United States.

*Pleurolooma* Rafinesque, 1820 (syn. *Fontaria* sensu auctt. nec Gray, 1832; *Zinaria* Chamberlin, 1939). Eleven named species, most of them probably synonyms or subspecies, eastern United States.



- Cherokia* Chamberlin, 1949. One species, southeastern United States.  
*Caralinda* Hoffman, 1978. One species, southeastern United States (Georgia).

## Literature Cited

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Radford College, Radford, Virginia 24142.